LUNT LS50THaPT Solar Telescope Manual

Congratulations and thank you for purchasing a Lunt Solar Systems Telescope!

Before you begin setting up your telescope and observing the Sun for the first time, please review the safety statements noted below. If you have any questions about the safe use of any **LUNT** Solar Systems product, please contact our Customer Service Department before operating the equipment.

SAFETY STATEMENTS

- **Never** look at the Sun with your naked eye or with a telescope that is not specifically designed to do so. Permanent and irreversible eye damage may result.
- There are inherent risks when looking at the Sun through any instrument. **LUNT** Solar Systems has taken your safety very seriously in the design of our systems. With safety being the highest priority, we ask that you please read and understand the operation of your telescope or filter system prior to use.
- Check that all filters are installed correctly and are free of any surface contamination that may compromise performance and/or potentially damage the surfaces of the optics when exposed to the Sun (i.e. fingerprints, smudges, etc.). Perform a routine safety check before each viewing session!
- Never leave the solar telescope unsupervised while pointed at the Sun. People who are not familiar with the correct operating procedures of the system may inadvertently replace the diagonal or remove the filter itself, because they are not aware of the integrated safety features of each component.
- Always be aware that you are viewing in direct sunlight. Take necessary precautions to protect yourself from sunburn and heat exposure.
- Never attempt to disassemble the system. Doing so will void your warranty and compromise its safety. Do not use your system if it is compromised in any way due to mishandling or damage.
- The Blocking Filter diagonal must always be in place when the telescope is in use. **LUNT** Solar Filters and Telescopes are NOT interchangeable with competitor's products.
- Protect your instrument from shock due to drops. The **LUNT** Solar Telescope can withstand normal use, however, a major shock may cause the etalon to de-contact, or cause other damage, which will require a trip to the factory for a non-warranty repair. Store the instrument in its original carton or case when not in use. With proper handling & care, your **LUNT** Solar equipment should last a lifetime.

UNPACKING YOUR NEW PURCHASE!

In the shipping box you will find:

- **LUNT** LS50THaPT Pressure-Tuned Solar Telescope
- A blocking filter assembly, B400 or B600, based on the model ordered
- **LUNT** Informational Warranty Card (please review instructions to activate your warranty online).
- Instruction Manual

SETTING UP FOR THE FIRST TIME

1. Attach the telescope and clamshell to your mount of choice. There is a ¼-20 threaded hole on the underside of the clamshell. Attach the scope directly to a photographic tripod or attach a Vixen-style or Losmandy-style dovetail plate (whichever your mount requires) to the clamshell.
2. Slide the Blocking Filter into the focuser and lock it down with the thumb screw. Insert a low power eyepiece (sold separately) into the blocking filter. A 25 mm is a good choice for a large field of view.
3. Attach a TeleVue Optics Sol-Searcher finder to your telescope. The Sol-Searcher label will be facing outward, towards the Sun. See the instruction sheet provided with the Sol-Searcher for complete instructions. If you do not have a Sol-Searcher, you can use the shadow of the front lens cell cast by the Sun onto the clamshell of your telescope. Center the shadow and you should be pretty close. Never attempt to use a conventional finder scope to locate the Sun! Look through the eyepiece to improve your alignment of the telescope.
4. Now it's time to focus. Your goal is to get the edge of the Sun as sharp as possible. Focus is achieved using the helical style eyepiece focuser.
5. Look through the eyepiece. Do you see a fuzzy red ball? If not, make sure you have removed the dust cap from the front and check your alignment to the Sun. If the Sun is still not in the field of view of your eyepiece, move the telescope around a little while you are looking through it. Be patient, you will find it! Once you do, center the Sun and, if you have one, adjust the Sol-Searcher so that it is correctly aligned to your scope.
6. **Tune That Sun**! Here is where the magic begins. On the side of the scope is a large black cylinder on a brass barrel. This cylinder is the Pressure Tuning system for the LS50THaPT. The black handle of the cylinder has a short start-thread attaching it to the brass cylinder. Unscrew the black handle completely. There may be some resistance and a faint "popping" sound. That is normal when adjusting pressure for your altitude. Carefully install the handle onto the cylinder, engaging the threads about one turn. While looking through the eyepiece, gently turn the black handle clockwise onto the cylinder. There will be little resistance at first, but as the pressure in the cylinder builds, the resistance increases slightly. As you turn the cylinder, centering of the 656.28 nm wavelength will come on-band and you should see features come into view. Continued tuning will result in the wavelength shifting past 656.28 nm, and details will begin to disappear. Fine-tune your telescope for the best images and based on your personal preference.
7. When you feel you have tuned effectively, refocus the telescope. Try to relax your eye while observing and let the details come to you. Once you are comfortable observing with a lower power eyepiece, try a 12 mm or other higher power ocular. On good observation days, you can push the magnification higher than on days with poor viewing conditions. Remember, if you cannot achieve sharp focus, use a lower power eyepiece.
8. ***A few details regarding Pressure Tuning****:* The amount of pressure being supplied to the etalon cavity is minimal. It is the equivalent of going from 500 ft. below sea level to about 10,000 ft. above; just a few PSI. There is NO risk of explosion, as this is only a fraction of 1 atmosphere. When not in use, we recommend that you release the pressure by simply backing off the black handle from the cylinder. If the handle separates, simply thread it back one (1) turn. It is not necessary to re-set the system every time it is used. Re-setting may only be required if the telescope has been idle for a long period of time. Doppler True Tuning (Pressure Tuning) provides more precision for observing desired solar features than Tilt Tuning. It adds a 3D-like component to the viewing experience. While it has minimal effect on prominences at the edge of the disk, it does have an effect on filaments and active regions on the surface. While viewing a filament at the center of the Sun, the user has the ability to Doppler shift from the base of the filament to the tip, following the filament's structure toward or away from you, providing enhanced visual and imaging capability for the observer as well as a research tool for the avid hobbyist.

For More Information: Join the solar community at http://www.solarastronomy.org. You'll find a very active forum and interesting articles. Visit the **LUNT** Solar Systems blog at http://luntsolarsystems.com/blog/. Search the archives for your favorite topics.